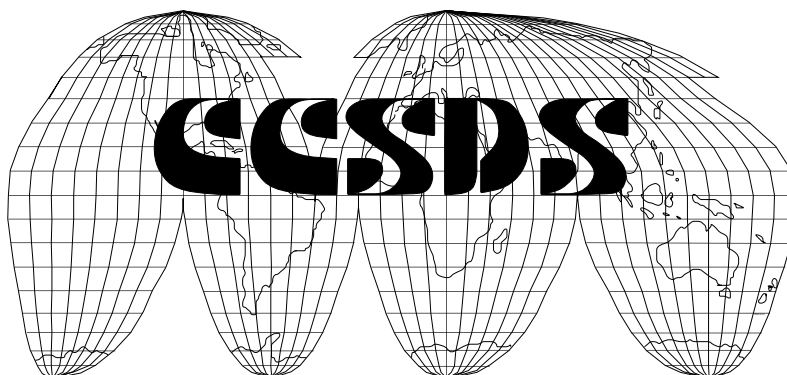# Consultative Committee for Space Data Systems

**SPECIFICATION FOR CCSDS
DOCUMENTATION STYLE**

CCSDS
PUBLICATIONS
MANUAL

CCSDS A20.0-Y-1

YELLOW BOOK

May 1994

FOREWORD

The CCSDS Publications Manual defines a set of style specifications intended to standardize the appearance and format of CCSDS publications. The style specifications have their origins in three separate areas:

a) common style characteristics found in the great majority of existing CCSDS Recommendations;

b) ISO style specifications;

c) mainstream publishing style conventions.

The CCSDS Publications Manual is intended to serve as both a guide for CCSDS document developers and an editorial Manual for publishers of CCSDS Documents.

Through the process of normal evolution, it is expected that expansion, deletion, or modification of this document may occur. This Manual is therefore subject to CCSDS document management and change control procedures which are defined in reference [1].

At time of publication, the active Member and Observer Agencies of the CCSDS were

Member Agencies

- British National Space Centre (BNSC)/United Kingdom.
- Canadian Space Agency (CSA)/Canada.
- Central Research Institute of Machine Building (TsNIIMash)/Russian Federation.
- Centre National d'Etudes Spatiales (CNES)/France.
- Deutsche Forschungsanstalt für Luft- und Raumfahrt e.V. (DLR)/Germany.
- European Space Agency (ESA)/Europe.
- Instituto Nacional de Pesquisas Espaciais (INPE)/Brazil.
- National Aeronautics and Space Administration (NASA HQ)/USA.
- National Space Development Agency of Japan (NASDA)/Japan.

Observer Agencies

- Australian Space Office (ASO)/Australia.
- Austrian Space Agency (ASA)/Austria.
- Belgian Science Policy Office (SPO)/Belgium.
- Centro Tecnico Aeroespacial (CTA)/Brazil.
- Chinese Academy of Space Technology (CAST)/China.
- Communications Research Laboratory (CRL)/Japan.
- Danish Space Research Institute (DSRI)/Denmark.
- European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)/Europe.
- European Telecommunications Satellite Organization (EUTELSAT)/Europe.
- Hellenic National Space Committee (HNSC)/Greece.
- Indian Space Research Organization (ISRO)/India.
- Industry Canada/Communications Research Center (CRC)/Canada.
- Institute of Space and Astronautical Science (ISAS)/Japan.
- Institute of Space Research (IKI)/Russian Federation.
- KFKI Research Institute for Particle & Nuclear Physics (KFKI)/Hungary.
- MIKOMTEK: CSIR (CSIR)/Republic of South Africa.
- Ministry of Communications (MOC)/Israel.
- National Oceanic & Atmospheric Administration (NOAA)/USA.
- Swedish Space Corporation (SSC)/Sweden.
- United States Geological Survey (USGS)/USA.

DOCUMENT CONTROL

Document	Title	Date	Status
CCSDS A20.0-Y-1	CCSDS Publications Manual	May 1994	Original Issue

CONTENTS

CONTENTS (continued)

1 INTRODUCTION

1.1 PURPOSE

This Publications Manual is a guide for the preparation of documents published by the Consultative Committee for Space Data Systems (CCSDS). It specifies rules for preparing and publishing CCSDS documents in order to achieve uniformity of appearance and presentation among these documents.

1.2 SCOPE

The organization, format, editorial style, page layout, and physical characteristics of CCSDS documents are defined by this Manual.

1.3 APPLICABILITY

The contents of this Manual are the specifications which the authors and editors apply during the preparation and printing of all Blue, Green, and Yellow Books published by CCSDS. Books published prior to adoption of this Manual will be edited to conform to its specifications whenever their next major revision takes place. Revisions of existing CCSDS documents will not be initiated for the sole purpose of achieving conformity.

Developers of CCSDS White Books and Red Books are encouraged to plan their documents to ensure that document organization, subordination structure, and general style are not in conflict with the specifications of this Manual. Adherence to the specifications of this Manual will ensure smooth transition of developmental drafts to published documents.

1.4 RATIONALE

The CCSDS believes that it is important for documents published by the CCSDS to be consistent in content, appearance, and presentation. The contents of this Manual define styles which will enable editors to prepare and publish CCSDS documents that are consistent in content, appearance, and presentation.

It is the intention of CCSDS that its Recommendations conform to a format and organizational framework generally compatible with that of documents produced by the International Organization for Standardization (ISO). To achieve compatibility, this Manual derives elements of format and organization from *IEC ISO Directives Part 3—Drafting and Presentation of International Standards* (reference [2]).

1.5   DOCUMENT STRUCTURE

All document specifications are contained in sections 3, 4, 5, and 6 of this Manual. Each specification is identified by a subsection number or a combination of a subsection number and list item number.

The responsibilities of the CCSDS Technical Editor and Document Editor are defined in annex A.

Comments in the form of notes and figures have been inserted to clarify the specifications.

1.6   DEFINITIONS

1.6.1 TERMS

For the purposes of this Manual, the following definitions apply:

back matter: the annexes and index of a document.

front matter: the title, Authority, Statement of Intent, foreword, document control, and table of contents of a document.

section: a primary division within the main text of a document.

title capitalization: style of capitalization in which, for a group of words, the first word and last word and all nouns, pronouns, adjectives, verbs, adverbs, and subordinate conjunctions have initial capitalization. Articles, coordinate conjunctions, and prepositions are lower case, regardless of their length, unless they are the first or last word of the phrase.

1.6.2 NOMENCLATURE

The following conventions apply throughout this Manual:

a) the words 'shall' and 'must' imply a binding and verifiable specification;

b) the word   'should' implies an optional, but desirable, specification;

c) the word   'may' implies an optional specification;

d) the words 'is', 'are', and 'will' imply statements of fact.

1.6.3 CONVENTIONS

In this document,

a) braces ({}) indicate that the term within the braces is a variable that should be replaced, **along with the enclosing braces**, by a value within a given range;

b) detailed specifications for specific kinds of CCSDS documents (e.g., Blue Books) may not be applicable to other kinds of CCSDS documents but may be used where appropriate;

c) Subsection headings are designated two-, three-, or four-digit headings according to the number of period-separated divisions in the subsection number. The value of the number in a division may require more than one digit to be displayed, but a heading numbered '2.12.37' is nonetheless a three-digit heading.

1.7 REFERENCES

The following documents contain provisions which, through reference in this text, constitute provisions of this Manual. At the time of publication, the editions indicated were valid. All documents are subject to revision, and users of this Manual are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below. The CCSDS Secretariat maintains a register of currently valid CCSDS Recommendations.

[1]   *Procedures Manual for the Consultative Committee for Space Data Systems*. CCSDS A00.0-Y-6. Yellow Book. Issue 6. Washington, D.C.: CCSDS, May 1994 or later issue.

[2]   *IEC ISO Directives—Part 3: Drafting and Presentation of International Standards.* 2nd ed. Geneva: ISO, 1989.

[3]   *Pantone Color and Black Selector.* Moonachie, NJ: Pantone, Inc., 1970.

[4]   *Webster's New Collegiate Dictionary*. Springfield, Mass.: G & C Merriam, latest edition.

[5]   *The Shorter Oxford English Dictionary.* Oxford: Clerendon, latest edition.

[6]   *Documentation—Bibliographic References—Content, Form and Structure*. ISO 690. 2nd ed. Geneva: ISO, 1987.

[7]   *Quantities, Units and Symbols*. ISO 31. 2nd ed. Geneva: ISO, 1981.

2   OVERVIEW

Section 5 of the CCSDS Procedures Manual states:

> The principal products of the CCSDS are Recommendations for space data systems standards. A Recommendation is a consensus technical proposal developed within the CCSDS to serve as a basis for corresponding data systems standards within Member Agencies. CCSDS Recommendations, therefore, are not in themselves standards. (reference [1])

CCSDS Recommendations are published as Blue Books. In order to provide technical information in support of the Blue Books, the CCSDS also publishes Technical Reports as Green Books. CCSDS Management and Meeting Reports and Internal Procedures are published as Yellow Books. Technically mature drafts of Blue Books are Red Books which undergo extensive and formal technical reviews. Preliminary drafts of Red and Green Books are White Books. A more complete discussion on CCSDS book colours is contained in reference [1].

This Publications Manual provides the CCSDS Technical Editors and Document Editors with the specifications needed to prepare and publish CCSDS Blue, Green, and Yellow Books that are consistent in content, appearance, and presentation. This Manual should also be used when preparing Red and White Books in order to simplify their conversions to Blue or Green Books.

Although this Manual is a Yellow Book, it has the same structure and format as that of a CCSDS Blue Book.

2.1   CONTENT, APPEARANCE, AND PRESENTATION

This Manual defines the following elements of CCSDS Blue, Green, and Yellow Books for consistent content, appearance, and presentation of published CCSDS documents. Many of the specifications have been derived from the style of CCSDS Blue and Green Books that were published before this Manual was prepared.

a) **Front Cover**

   A front cover is specified to ensure that each CCSDS document is easily identified as a Blue, Green, or Yellow Book. The document title is defined to clearly indicate the contents of the Book. The front cover specifications include a fixed logo and format.

b) **Front Matter**

   Specifications are stated for front matter elements including title page, Authority page, Statement of Intent page, foreword, document control, and table of contents.

c) **Main Text**

Specifications are stated for main text elements including sections on introduction, overview, and main text. For Blue Books, no data systems specifications will be found in the introductory or overview sections.

d) **Back Matter**

Specifications are stated for back matter elements including annexes that are an important part of the document, informative annexes, and an index.

2.2 COMPATIBILITY WITH ISO DOCUMENTS

Some CCSDS Blue Books have become ISO documents using the ISO 'cover sheet' method. Many new CCSDS Blue Books are expected to become ISO documents.

This Manual contains specifications for CCSDS Blue Book and should ease the conversion of these Blue Books to documents that closely conform to the ISO document style.

Much of the front matter in a CCSDS Blue Book may not be included in an ISO version of that Book. The CCSDS Blue Book specifications contained in this Manual for the main text and back matter elements have been developed to be consistent with the style of ISO documents. Minimum changes to these elements should be required if and when a CCSDS Blue Book is converted to an ISO document.

3   CONTENTS OF CCSDS BOOKS

CCSDS Blue, Green, and Yellow Books shall contain the following elements, except as noted, in the order listed:

a) front cover;

b) front matter:

    1) title page — not required for drafts having white covers;
    2) Authority page — for Blue and Green Books only;
    3) Statement of Intent page — for Blue Books only;
    4) foreword;
    5) document control;
    6) table of contents;

c) main text:

    1) introduction, made up of the following subsections, in order shown:

        –   purpose;
        –   scope;
        –   applicability;
        –   rationale;
        –   document structure;
        –   definitions — if needed;
        –   references — if needed;

    2) overview;

    3) document main text:

        –   technical specifications;
        –   conformance section — if needed;

d) back matter — optional:

    1) annexes that are part of the Recommendation (Blue Books only) — as many as needed;
    2) informative annexes — as many as needed;
    3) index — if needed.

3.1   FRONT COVER CONTENTS

The front cover contents that shall not be changed without Management Council authority are:

    a) the CCSDS name;
    b) the series name;
    c) the CCSDS logo.

Additionally, restrictions are placed on the title and issue data displayed on the cover.

3.1.1 CCSDS NAME

The spelling, position, size, and font used for the CCSDS name on CCSDS document covers are fixed as defined in section 6. The special font used for the CCSDS name has been developed for use with a variety of computer/laser-printer systems.

3.1.2 SERIES NAME

The series name is fixed for the three final types of CCSDS document:

    a) for Blue Books, the series name is

<div align="center">

RECOMMENDATION FOR SPACE
DATA SYSTEMS STANDARDS

</div>

    b) for Green Books, the series name is

<div align="center">

REPORT CONCERNING SPACE
DATA SYSTEMS STANDARDS

</div>

    c) for Yellow Books, no series name is defined.

3.1.3 TITLE

The document title shall be definitive and able to be placed within the fixed title-box size defined in section 6 (see figure 6-2).

3.1.4 DOCUMENT IDENTIFICATION

The document identification data displayed on the covers of CCSDS documents shall conform to the following specifications (refer to figure 6-2 for the location and format of document identification data):

    a) The document number shall appear on the cover in the form

<div align="center">

CCSDS {number}-{letter}-{issue}

</div>

where

number   is the document number supplied by the CCSDS Secretariat;
letter   is the upper-case first letter of the book colour;
issue   is the issue number.

1) For Blue, Green, Red, White, and Yellow Books, the issue number shall be an integer.

2) For Pink Books, and for preliminary revisions of Green and Yellow Books, a period shall be added after the issue number of the last published issue and a second integer representing the review issue shall be added after the period. The review issue number begins with 1 and is incremented by 1 each time a new review version is issued (see reference [1], annex F).

b) The book colour shall appear on the cover in the form

{COLOUR} BOOK

where COLOUR is one of the CCSDS book colours.

c) The issue date shall appear on the cover in the form

{Mmmm YYYY}

where

Mmmm   is the name of the month;
YYYY   is the year.

NOTE – The issue date is the year and month that the CCSDS Management Council approved the document for publishing.

3.1.5 CCSDS LOGO

The position, size, and appearance of the CCSDS logo are fixed (see figure 6-2).

3.2 FRONT MATTER CONTENTS

3.2.1 TITLE PAGE

a) The title page is identical to the front cover with the exception that the title page shall be printed black on white for all document colours.

b) If the front cover is white, a separate title page shall not be required.

3.2.2 AUTHORITY PAGE

An Authority page shall be part of CCSDS Blue and Green Books.

The parts of the Authority page are

– the Authority text box;
– the statement of authorization;
– the address of the CCSDS Secretariat.

The statement of authorization, portions of the Authority text box, and the CCSDS Secretariat address, along with the phrase that introduces it, are boilerplate. An example of a Blue Book Authority page is shown in figure 3-1.

3.2.2.1 Authority Page Text Box

Authority information shall be entered in a fixed-format text box as follows:

```
Issue:          {Colour} Book, Issue {#}
Date:           {Approval Date}
Location:       {Location}
```

where

Colour	is either 'Blue' or 'Green';
#	is the issue number;
Approval Date	is the date of the Management Council (MC) approval of the document in the form of 'Month Year';
Location	If the document has been approved at an actual MC meeting, then the location of the meeting is specified; otherwise, if the document has been approved by mail ballot, then the location of the current CCSDS Secretariat is specified.

3.2.2.2 Statement of Authorization

a) The statement of authorization for Blue Books shall be

This document has been approved for publication by the Management Council of the Consultative Committee for Space Data Systems (CCSDS) and represents the consensus technical agreement of the participating CCSDS Member Agencies. The procedure for review and authorization of CCSDS Recommendations is detailed in reference [1], and the record of Agency participation in the authorization of this document can be obtained from the CCSDS Secretariat at the address below.

b) The statement of authorization for Green Books shall be

> This document has been approved for publication by the Management Council of the Consultative Committee for Space Data Systems (CCSDS) and reflects the consensus of technical panel experts from CCSDS Member Agencies. The procedure for review and authorization of CCSDS Reports is detailed in reference [1].

3.2.2.3 Secretariat Address

For both Blue and Green Books, the current address of the CCSDS Secretariat, and the phrase used to introduce it, shall be:

> This document is published and maintained by:
>
> > CCSDS Secretariat
> > Program Integration Division (Code OI)
> > National Aeronautics and Space Administration
> > Washington, DC 20546, USA

NOTE – The address of the CCSDS Secretariat changes periodically. It is the responsibility of the Document Editor to ensure that the correct current address is used (see annex A).

3.2.3 STATEMENT OF INTENT PAGE

The Statement of Intent page shall be used in Blue Books only. The text for the Statement of Intent is provided by the Management Council and may be changed only by Management Council action. The exact text of the Statement of Intent is shown in figure 3-2.

CCSDS RECOMMENDATION FOR PACKET TELEMETRY

AUTHORITY

Issue:	Blue Book, Issue 4
Date:	November 1997
Location:	Toulouse, France

This document has been approved for publication by the Management Council of the Consultative Committee for Space Data Systems (CCSDS) and represents the consensus technical agreement of the participating CCSDS Member Agencies. The procedure for review and authorization of CCSDS Recommendations is detailed in reference [1], and the record of Agency participation in the authorization of this document can be obtained from the CCSDS Secretariat at the address below.

This document is published and maintained by:

CCSDS Secretariat
Program Integration Division (Code OI)
National Aeronautics and Space Administration
Washington, DC 20546, USA

CCSDS 102.0-B-4   Page i   November 1997

Figure 3-1:   Example of CCSDS Blue Book Authority Page

STATEMENT OF INTENT

The Consultative Committee for Space Data Systems (CCSDS) is an organization officially established by the management of member space Agencies. The Committee meets periodically to address data systems problems that are common to all participants, and to formulate sound technical solutions to these problems. Inasmuch as participation in the CCSDS is completely voluntary, the results of Committee actions are termed **Recommendations** and are not considered binding on any Agency.

This **Recommendation** is issued by, and represents the consensus of, the CCSDS Plenary body. Agency endorsement of this **Recommendation** is entirely voluntary. Endorsement, however, indicates the following understandings:

o   Whenever an Agency establishes a CCSDS-related **standard**, this **standard** will be in accord with the relevant **Recommendation**. Establishing such a **standard** does not preclude other provisions which an Agency may develop.

o   Whenever an Agency establishes a CCSDS-related **standard**, the Agency will provide other CCSDS member Agencies with the following information:

–   The **standard** itself.

–   The anticipated date of initial operational capability.

–   The anticipated duration of operational service.

o   Specific service arrangements shall be made via memoranda of agreement. Neither this **Recommendation** nor any ensuing **standard** is a substitute for a memorandum of agreement.

No later than five years from its date of issuance, this Recommendation will be reviewed by the CCSDS to determine whether it should: (1) remain in effect without change; (2) be changed to reflect the impact of new technologies, new requirements, or new directions; or (3) be retired or canceled.

In those instances when a new version of a **Recommendation** is issued, existing CCSDS-related Agency standards and implementations are not negated or deemed to be non-CCSDS compatible. It is the responsibility of each Agency to determine when such standards or implementations are to be modified. Each Agency is, however, strongly encouraged to direct planning for its new standards and implementations towards the later version of the Recommendation.

Figure 3-2:   CCSDS Blue Book Statement of Intent Text

3.2.4 FOREWORD

3.2.4.1 Usage

a) The use of the document and the identification of the audience for which the document is intended shall be described in the foreword.

NOTE   – It is the responsibility of the Technical Editor to provide the technical content of the foreword (see annex A).

b) The following boilerplate text shall follow the technical content of the foreword:

Through the process of normal evolution, it is expected that expansion, deletion, or modification of this document may occur. This document is therefore subject to CCSDS document management and change control procedures which are defined in reference [1].

NOTE   – Reference [1] above is the CCSDS Procedures Manual (reference [1]).

c) On the next page following the text of the foreword, an up-to-date list of CCSDS Member and Observer Agencies shall be included.

NOTE   – It is the responsibility of the Document Editor to provide the boilerplate text and list of Agencies (see annex A).

3.2.4.2 Content Limitations

In CCSDS documents, **no reference** shall be made to any persons or corporations involved in the document-development process, regardless of any individual's particular contribution.

3.2.5 DOCUMENT CONTROL

a) The document control section of each CCSDS Blue or Green Book shall contain a history of the published issues of that book (see figure 3-3).

b) The following entries shall be made for **each issue** of the book, including the current issue:

1) document reference;
2) title;
3) date;
4) a summary of changes; if appropriate, changes shall be listed in two categories:

– changes not compatible with the previous issue; and
– changes compatible with the previous issue.

c) Only issues at the same developmental level shall be recorded on the document control page; i.e., Red Books shall **not** be recorded on a Blue Book document control page.

CCSDS RECOMMENDATION FOR TELECOMMAND: DATA ROUTING SERVICE

DOCUMENT CONTROL

Document	Title	Date	Status and Substantive Changes
CCSDS 202.0-B-1	Recommendation for Space Data System Standards. Telecommand, Part 2 Data Routing Service, Issue 1	January 1987	Original Issue
CCSDS 202.0-B-2	Recommendation for Space Data System Standards Telecommand, Part 2 Data Routing Service, Issue 2	November 1992	Supersedes Issue 1 Removal of COP-0 & COP-2 Longer Frame length Multiple Packets per Frame Single Virtual Channel not required to have Identifier set to "all zeros" Use of AOS downlink Full definition of Frame Error Control algorithm Removal of mandatory performance requirements Correction of error in maximum Packet length specification (B-2.1(1)(a)) Segment layer not optional (Segment Header is still optional) Consistency with part 2.1 (Reference [7])

NOTE – Substantive changes from the previous issue are flagged with change bars in the margin.

CCSDS 202.0-B-2   iv   November 1992

Figure 3-3:   Example of CCSDS Blue Book Document Control

d) Substantive changes in the text of the current book from those in the previous issue shall be identified by change bars in the margin, unless changes are so extensive that use of change bars would be prohibited.

NOTE – The Technical Editor is responsible for ensuring that these document control functions are implemented (see annex A).

3.2.6 TABLE OF CONTENTS

The table of contents shall list the following document elements, along with the page number on which they appear, in the following order:

a) the introduction and the subordinate levels of subsection headings (for larger documents, headings at the two-digit level should be the lowest listed level);

b) the overview;

c) the main section headings and subordinate levels of subsection headings (for larger documents, headings at the two-digit level should be the lowest listed level);

d) annex main headings;

e) the index;

f) figures;

g) tables.

3.3 MAIN TEXT CONTENTS

3.3.1 INTRODUCTION

The introduction of a document serves to define the scope of the document and specific conventions used in the document. The introduction has the following subsections in the given order. Not all subsections are required for a given document.

3.3.1.1 Purpose

The statements of purpose and scope identify the purpose of the document and define the area to which it applies. There is no prescribed text for these elements. The only requirement is that purpose and scope be stated concisely at the beginning of the document.

3.3.1.2 Scope

See 3.3.1.1 above. The purpose and scope subsections may be merged into a single subsection entitled 'PURPOSE AND SCOPE' if appropriate.

3.3.1.3 Applicability

An applicability subsection is required for CCSDS Blue Books. This subsection defines the implementations to which the document applies. There is no prescribed text for this subsection.

3.3.1.4 Rationale

A rationale subsection should be included in CCSDS Blue Books. This subsection outlines the reasons the book, or a new issue, was published. There is no prescribed text for this subsection.

3.3.1.5 Document Structure

A document structure subsection is recommended for CCSDS Books. This subsection outlines the structure of the document giving the reader some information on the content of each of the sections and annexes. There is no prescribed text for this subsection.

3.3.1.6 Definitions

a) **Terms**. Terms specific to the Recommendation or Report shall be listed.

1) The drafting and presentation of terms and definitions shall be consistent with the guidelines in annex B of reference [2].

2) The text used to introduce the list of terms shall be:

"For the purposes of this document, the following definitions apply."

b) **Nomenclature**. The nomenclature subsection notes any specific use of the English language which apply to the document. For Blue Books, the following boilerplate text shall be placed in this subsection:

"The following conventions apply throughout this Recommendation:

a) the words 'shall' and 'must' imply a binding and verifiable specification;

> b) the word 'should' implies an optional, but desirable, specification;
>
> c) the word 'may' implies an optional specification;
>
> d) the words 'is', 'are', and 'will' imply statements of fact."

c) **Conventions**. If required, a short list of conventions used in the text of the Recommendation or Report shall be included in this subsection.

3.3.1.7 REFERENCES

The references subsection contains a list of documents that are referenced directly in the text of the Recommendation or Report.

a) **Blue Books**

1) The list shall include documents whose provisions are required for implementing the Recommendation.

2) The boilerplate text used to introduce the list of documents shall be as follows:

> The following documents contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All documents are subject to revision, and users of this Recommendation are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below. The CCSDS Secretariat maintains a register of currently valid CCSDS Recommendations.

3) The list shall not include the following:

– documents that are not publicly available;

– documents to which only informative reference is made;

– documents that provided only source material in the development of the Recommendation.

NOTE – Documents that shall not be included in the references subsection may be listed in an informative annex.

b) **Green Books**

1) The list shall include all documents referenced in the text of the Report.

2) The boilerplate text used to introduce the list of documents shall be as follows:

> The following documents are referenced in this Report. At the time of publication, the editions indicated were valid. All documents are subject to revision, and users of this Report are encouraged to investigate the possibility of applying the most recent editions of the documents indicated below. The CCSDS Secretariat maintains a register of currently valid CCSDS Reports and Recommendations.

c) **Content, Form, and Structure**

The content, form, and structure of bibliographic references shall conform to ISO 690 (reference [6]).

3.3.2 OVERVIEW

a) For Blue and Green Books, the overview section shall contain general text on the subject of the document. Sufficient text and/or tables and figures should be used to provide the reader with a clear understanding of the scope of the technical content of the book within the overall system.

b) For Blue Books, no requirements or specifications shall be found in the overview section.

3.3.3 DOCUMENT MAIN TEXT

The main text for the document may be spread over many sections and subsections as defined in section 4.

a) Each section of the document shall be devoted to a particular division of the subject.

b) For Blue Books,

1) specifications shall begin in section 3 and continue through as many subsequent sections as needed;

2) each specification shall be explicitly identified by a unique subsection number or combination of subsection and list item numbers;

3) text shall be written in terse style;

4) comments and explanatory material shall use the NOTE format as defined in section 4;

c) For Green Books, all detailed technical report material shall begin in section 3 and continue through as many subsequent sections as needed.

3.3.4 CONFORMANCE SECTION

The conformance section, if included, shall follow the sections containing technical specifications.

3.4 BACK MATTER CONTENTS

Back matter is not required, but informative annexes and an index are recommended if the information presented in the main text is made more accessible by their inclusion.

The back matter includes the following elements:

– annexes that are part of a Recommendation (Blue Books only);

– informative annexes;

– index.

3.4.1 ANNEXES

Annexes provide supplementary information for the reader of the document.

3.4.1.1 Annexes That Are Part of a Recommendation

Annexes that are part of a Recommendation contain technical information which, because of its length, detail, or specificity, is inappropriate for inclusion in the main sections, but which is necessary for implementation of a Recommendation.

3.4.1.2 Informative Annexes

Informative annexes, which are not part of a Recommendation, provide ancillary information which is not necessary for implementation of a Recommendation.

3.4.1.3 Annex Presentation

a) If an annex is present, it shall have the following information at the beginning of the first annex page:

1) an annex designator in the form 'ANNEX {L}', where L is the annex letter;

2) the annex title;

3) for Blue Books, one of the following two statements:

    – "(This annex **is** part of the Recommendation)"

    – "(This annex **is not** part of the Recommendation)"

4) a brief statement of the purpose of the annex.

b) In most cases, the first paragraph of an annex should state the purpose of that annex.

c) If definitions of terms are provided as an aid to the reader, lists of these terms shall be placed in the first informative annex.

3.4.2 INDEX

An index is often a useful part of a technical document. While an index is not required in CCSDS documents, Technical Editors are encouraged to provide an index of important topics.

4   FORMAT

CCSDS Blue, Green and Yellow Books shall be formatted into sections, subsections, paragraphs, and lists.

4.1   PRIMARY TEXT DIVISIONS

The layout and typesetting of major text elements are discussed in section 6.

4.1.1 SECTIONS

A section shall consist of a section heading followed by at least one paragraph of text and/or subsections.

4.1.1.1 Section Headings

a) A section heading shall consist of two parts, a section number and a section title, which identify the position of a section in relation to other sections and generally describe its contents.

b) The section number shall be Arabic and stand first.

c) The section title shall begin at the first tab stop to the right of the section number.

d) No punctuation shall be used either between section number and title or at the end of the title.

4.1.1.2 Section Numbering

All sections shall be numbered consecutively beginning with 1.

4.1.2 SUBSECTIONS

4.1.2.1 Usage

a) Subsections shall be subdivisions of sections or higher subsections.

b) The number of subsection levels shall be constrained to make it easier to read the document. The recommended maximum is four digits of subsection numbering.

c) A subsection shall consist of a subsection heading followed by one or more paragraphs, lists, subordinate subsections, or combinations of such elements.

4.1.2.2 Subsection Headings

a) A subsection heading shall consist of a number and a title.

b) The subsection number shall be Arabic and stand first.

c) The subsection title shall begin at the first tab stop to the right of the number.

d) No punctuation shall be used either between number and title or at the end of the title.

4.1.2.3 Subsection Numbering

a) The first subsection level shall be numbered consecutively beginning with '{S}.1', where S is the section number.

b) Subsequent subsection levels shall be numbered consecutively beginning with '{S.N}.1', where S.N is the number of the next higher subsection.

c) All subsection numbers shall reset to 1 whenever the next higher level number is incremented.

4.1.3 PARAGRAPHS

4.1.3.1 Usage

a) Paragraphs are the basic text unit and shall generally contain a unique single specification, item, or thought.

b) A paragraph shall consist of one or more sentences.

4.1.3.2 Paragraph Numbering

Paragraphs are not normally numbered.

a) If numbering is necessary, the numbers of the paragraphs shall follow the format of subsection numbering, where the paragraph is assumed to be one level subordinate to the current subsection level.

b) For the lowest levels of numbered paragraphs (e.g., fifth and sixth), list numbering and format should be used (refer to 4.2.1).

c) As an alternative to numbering, the text of a paragraph may 'run in', i.e., begin on the same line as the subsection heading. If this method is used

  1) all paragraphs subordinate to the same subsection shall have the same run-in format; and

  2) a period shall stand at the right of the subsection heading (see figure 4-1).

d) For Blue Books, any paragraph defining a specification shall be uniquely identified by a subsection number or combination of subsection number and list item number.

4.2   SECONDARY TEXT DIVISIONS

4.2.1 LISTS

4.2.1.1 List Usage

Lists may follow any level of subordination. The items of a list may be words, phrases, or complex clauses, but all items of a given list shall be grammatically parallel.

4.2.1.2 List Formats

a) Each list item shall be preceded by (1) a lower-case letter followed by a closing parenthesis or (2) an en dash ('–', a dash approximately the length of the letter 'n') indented one tab position from the left margin of the preceding paragraph.

b) If a second list level is required, each item shall be preceded by (1) an Arabic numeral followed by a closing parenthesis or (2) a bullet (e.g., •) aligned with the text of the preceding list item.

   1) If dashes are used at the first list level, bullets shall be used at the second level.

   2) If letters are used at the first list level to identify the list items, numbers are normally used at the second level, although dashes are permitted.

c) If a third list level is required,

   1) the list identifiers for the first and second levels shall be lower-case letters and Arabic numerals, respectively; and

   2) each item shall be preceded by a lower-case Roman numeral followed by a closing parenthesis.

d) For all list items,

   1) the text of the list item shall begin at the next tab stop following the list identifier (closing parenthesis, dash or bullet);

   2) if the text of the list item requires more than one line, it shall align with the beginning of the text on the first line (see figure 4-1).

1 SECTION HEADING

1.1   TWO-DIGIT SUBSECTION HEADING

1.1.1 THREE-DIGIT SUBSECTION HEADING

1.1.1.1 Four-Digit Subsection Heading

Paragraphs are at least one complete sentence. The last sentence of a paragraph may introduce a list:

    a)   list item;

    NOTE 1   –   This note refers to list item a. It is right justified on the margin and left aligned under the first note-text character following the note title.

    b)   list item:

    NOTE 2   –   This note refers to list item b.

        1)   subordinate list item, which aligns with the beginning of the text on the first line because the text of the list item requires more than one line;

        2)   subordinate list item;

    c)   list item.

1.1.1.2 Four-Digit Subsection Heading

Paragraphs are, as noted above, at least one complete sentence. The last sentence of a paragraph may introduce a list:

NOTE   –   This note refers to the paragraph text immediately preceding it. It is right justified on the margin and left aligned under the first note-text character following the note title.

    –   list item;

    –   list item;

        •   subordinate list item;

        •   subordinate list item.

Figure 4-1:   Format of Selected Text Divisions

1.1.2 THREE-DIGIT SUBSECTION HEADING

1.1.2.1 Four-Digit Subsection Heading. Paragraph text in this subsection is 'run in', i.e., it begins on the same line as the subsection heading. The paragraph text is full justified and the lines are filled to the left and right margin.

1.1.2.2 Four-Digit Subsection Heading. If one subsection at a given level of subordination has run-in text, every subsection of the same level subordinate to the same next-higher subsection has the same style. An analogous structure with lists is as follows:

    a) **Titles with Lists**. A list item may have a title with run-in text.

    b) **Attributes**. The list-item title is bold and capitalized as a title.

    c) **Parallel Structure**. If one list item has a title, every item at the same level of the same list has a title.

1.1.3 THREE-DIGIT SUBSECTION HEADING

1.1.3.1 If paragraphs are numbered, the numbers of the paragraphs follow the format of subsection numbering.

1.1.3.2 The paragraph is assumed to be one level subordinate to the current subsection level, and all paragraphs at the same level subordinate to the same subsection are numbered in the same style.

NOTES

1   In Blue Books, paragraphs containing specifications are numbered.

2   At the lowest levels of subordination, list numbering style is used.

1.2 TWO-DIGIT HEADING

    a) **Titles**

        1) List items may serve as titles for text that is not run in, in which case they have no terminal punctuation. List-item titles may also serve as headings for lists at the next subordinate level.

        2) Whatever style is used should be consistent within a given list.

Figure 4-1:   Format of Selected Text Divisions (continued)

4.2.1.3 List Introduction

A list shall be introduced in one of two ways:

a) a grammatically complete statement followed by a colon; or

b) the beginning of a statement which is completed grammatically by the list items that follow.

4.2.1.4 List Punctuation

Normally lists are punctuated as though the introductory statement together with the items of the list form a sentence. Each list item except the last ends with a semicolon; the last item ends with a period. However, because the rules of punctuation do not change to accommodate lists, there are three exceptions:

a) if a conjunction is used at the end of one list item to join it with the next list item, the semicolon shall precede the conjunction;

b) if any list item is so grammatically complex as to require internal colons, semicolons, or periods, each item of that list shall be punctuated as a sentence;

c) if a list immediately follows a heading without introductory text, each list item shall be a complete sentence terminated with a period.

4.2.1.5 List Format Variations

a) List items may be titles serving as headings for paragraphs or subordinate lists. If a list item is a title, the title shall be bold and capitalized as a title, and it shall have no terminal punctuation. If one list item is a title, all items at the same level in the same list shall also be titles.

b) List items may have titles with text run in (i.e., title and text stand on the same line). Titles with run-in text shall be bold, capitalized as titles, and terminated with a period.

c) A fairly wide-spread style presents bulleted lists without terminal punctuation. It is an editorial option to do so in CCSDS documents, although the style used should be consistent throughout a given document.

4.2.2 NOTES

4.2.2.1 Usage of Notes

Notes (as distinguished from footnotes) are placed in text to supply information to aid the reader in understanding the document text. A note shall be placed after the paragraph to which it refers.

4.2.2.2 Note Format

There are three note formats:

a) A single note begins with 'NOTE – ' followed by the text of the note. For CCSDS documents, the text of the note shall be full justified, the left edge of the note text aligning to the right of the note title, the right edge aligning with the right margin. The note title should align with the left edge of the preceding paragraph.

b) Two or more notes shall be grouped together under the title 'NOTES' with the text of the notes numbered consecutively beginning with 1.

1) The note number shall be aligned with the left edge of the note title.

2) The text of the note shall be full justified, the left edge aligning on the next tab position following the note number; the right edge aligning with the right margin. The note title should align with the left edge of the preceding paragraph.

c) Two or more single notes occurring in separate places within the same subdivision of text may be numbered in the style 'NOTE 1 - ', 'NOTE 2 - ', etc. The format for numbered notes is consistent with that of single notes described in 4.2.2.2a.

4.2.3 FOOTNOTES

4.2.3.1 Footnote Usage

Footnotes should be avoided. Their best use is to provide supplementary information that is not essential to the understanding of the document text, and there is little justification for providing nonessential information.[1] An exception may be made for tables and figures, where space constraints and lack of text structure often make footnotes the clearest way to express a note that would otherwise be expressed in the form described in 4.2.2.

4.2.3.2 Footnote Format

a) A single footnote on a page shall be designated in the page text with a superscript asterisk or Arabic number.

b) The text of the footnote, beginning with the footnote number or asterisk, shall be placed at the bottom of the page on the left margin.

_____

[1] Possible uses for footnotes include historical explanations that will be deleted from the next revision or transient information intended to be removed as unnecessary after the next revision.

c) A short separator line, aligned with the left margin, shall stand between the last line of text on the page and the note text.

d) Two or more footnotes on a page shall be differentiated by superscript Arabic numbers in the text and at the beginning of the note text.

    1) Otherwise the format of multiple footnotes is the same as that of a single footnote.

    2) Separator lines between footnotes shall not be used.

e) Footnotes in tables and figures shall be designated with asterisk or Arabic numbers in the same way as footnotes on text pages.

f) For tables and figures, footnotes shall be positioned at the bottom of the table or figure rather than at the bottom of the page.

g) For tables and figures enclosed in lines, footnotes shall be placed inside the lines that form the outer boundary of the table or figure.

4.2.4 TABLES

4.2.4.1 Table Usage

Tables are used to present information in an easily understandable form.

4.2.4.2 Table Numbering

a) Tables shall be numbered consecutively beginning with 'Table {S}-1: ', where S is the number designator of a section or the letter designator of an annex.

b) Table numbers shall be reset to S-1 for each new section or annex.

4.2.4.3 Table Title

The table title shall be centred horizontally above the table.

4.2.4.4 Table Position

Each table shall be positioned as near as possible to the text in which the contents of the table are explained.

4.2.5 FIGURES

4.2.5.1 Figure Usage

Figures are used to present information in an easily understandable form.

4.2.5.2 Figure Numbering

a) Figures shall be numbered consecutively beginning with 'Figure {S}-1: ', where S is the number designator of a section or the letter designator of an annex.

b) Figure numbers shall be reset to S-1 for each new section or annex.

4.2.5.3 Figure Titles

The figure title shall be centred horizontally below the figure.

4.2.5.4 Figure Position

Each figure shall be positioned as near as possible to the text in which the contents of the figure are explained.

4.2.6 TEXT REFERENCES

Within a document, sections, subsections, tables, figures, annexes, and sometimes notes may need to be referenced.

a) When referenced, sections shall be referenced as 'section {N}', where N is the section number.

b) Subsections shall be referenced by subsection number only.

c) Figures, tables, and annexes shall be referenced as 'figure {S-N}', 'table {S-N}', and 'annex {L}', respectively, where S-N and L are valid figure/table or annex designators.

d) Figures and tables must be referenced in text.

e) References to notes may require that the relative location of the note be supplied, as in 'see note under 4.3.1' or 'refer to note 2 under 4.2'.

4.2.7 BIBLIOGRAPHIC REFERENCES

a) References to other documents shall be made through reference to the references subsection in the style 'refer to reference [{N}]' or '. . . (reference [{N}])', where N is the number of a reference in the references subsection.

b) All documents listed in the references subsection of a document shall be referenced in the text of that document.

c) The list of documents referenced shall be numbered with Arabic numbers in square brackets on the left margin without closing parenthesis or other punctuation. See the references subsection for an example of reference-list style.

5   STYLE

This section of the Manual defines the prose style of CCSDS documents, i.e., the specific or characteristic manner of expression in a language.

5.1   LANGUAGE CONVENTIONS

All CCSDS documents are published in English.

5.1.1 DICTION AND SPELLING

For practical purposes, any mainstream dictionary of the English language can serve as a guide to spelling, word division, and word usage.

a) Because there is always a need for final authority, *Webster's New Collegiate Dictionary* (reference [4]), and *The Shorter Oxford English Dictionary* (reference [5]), shall be the official CCSDS dictionaries for American and British English, respectively.

b) After the American or British English style has been selected for a given CCSDS document, it shall be used throughout (without mixing).

5.1.2 GRAMMAR AND OTHER ELEMENTS OF STYLE

There are many treatments of English grammar in general use, and many modern English-language dictionaries contain thorough and concise appendices on conventions for usage and punctuation.

5.2   PREFERRED STYLE

The single most important element of style is consistency. Consistent nonstandard style is preferable to inconsistent style. Preparers of CCSDS documents should find a framework of style that is comfortable to them and shall work consistently within that framework; there are, however, a few basic elements of style that should be observed.

5.2.1 PROSE STYLE

a) CCSDS Documents shall be written in the third person.

b) The prose style shall be simple and straightforward enough to be easily understood by persons for whom English is a second language.

c) Sentences shall be complete and as short as possible.

d) Unnecessary repetition shall be avoided (particularly using different words to express the same idea many times).

e) Use of obscure words and informal constructions shall be avoided.

f) Contractions (e.g., it's, they're) shall not be used. They are informal in English, and they invite confusion with the English genitive (e.g., its).

5.2.2   ACRONYMS AND ABBREVIATIONS

a) Excessive use of acronyms and abbreviations shall be avoided.

b) Acronyms and abbreviations shall be 'called out' in the document text the first time they are used.

c) The correct form for calling out acronyms and abbreviations shall be to state the complete term first followed by its acronym or abbreviation in parentheses.

d) Acronyms and abbreviations used in text should be defined in the acronyms and terminology annex. Definitions appearing in the annex shall agree with those in the text.

e) In the case of acronyms or initials, the letters of the term used to form the acronym or initials are capitalized.

f) Plurals of acronyms and abbreviations are formed in the same ways as for real words.

   1) For initials and other abbreviations, an 's' is added to the abbreviation.

   2) For acronyms, 's' or 'es' is added depending on whether the acronym ends in a sibilant.

g) The indefinite article used with an acronym or abbreviation depends on the pronunciation of the acronym or abbreviation. If the first letter of the acronym or abbreviation is pronounced with an English vowel sound the indefinite article should be 'an'; otherwise it should be 'a'. For example, 'a VCDU-ID', 'an MSB', 'a TDRS', 'an EOS'.

NOTE   – An acronym is a pronounceable word formed from the first (or first few) letters of words in a phrase, e.g., NASA. Many abbreviations are formed from the initial letters of words, but often the abbreviation is not a word but a simple collection of letters pronounced individually, e.g., ICD. Some abbreviations are pronounced as words by some and as individual letters by others. For such abbreviations, the use of the indefinite article depends on the most common pronunciation of the abbreviation.

5.2.3 MATHEMATICAL STYLE

a) Equations shall be expressed in correct mathematical form with letter symbols as the equation parameters.

b) A list explaining the letter symbols and their units shall follow the equation, unless the letter symbols used are defined in the acronyms and terminology annex.

c) Descriptive names or names of quantities shall not be arranged in the form of an equation.

d) The style used shall be based upon the following example:

$$I \geq \frac{R}{S}$$

where

I   is the number of convolutional encoders;

R   is the effective user data rate;

S   is the effective decoder rate.

e) Equations may be numbered, if necessary, with Arabic numbers in parentheses on the right margin, as in the following example:

$$g(x) = \prod_{j=112}^{143} (x - \alpha^{11j}) \quad = \quad \sum_{i=0}^{32} G_i X^i \tag{1}$$

f) The numbering shall be independent of the numbering of sections, subsections, figures, and tables.

5.2.4 QUANTITIES, UNITS, AND SYMBOLS

The International System of units (SI) as set out in ISO 31 (reference [7]) shall be used. If non–SI units are necessary (e.g., inches), the values shall be expressed first in SI units followed by the non–SI equivalent in parentheses.

6   PHYSICAL ELEMENTS

6.1   PAPER

6.1.1 PAPER WEIGHTS

6.1.1.1 Text Pages

a) Eighty-nine gsm (sixty-pound) or heavier paper shall be used for all CCSDS Blue, Green, and Yellow Books.

b) White, Red, and Pink Books may be reproduced on lighter-weight paper.

6.1.1.2 Trim Size

a) Subject to item b) below, the trim size of CCSDS document pages shall be A4 (210 x 297 millimetres).

b) If it is not cost effective to produce A4 trim sizes, the alternate trim size shall be 216 x 280 mm (8.5 x 11 inches).

6.1.1.3 Cover Stock

a) One hundred and thirty-five gsm (fifty-pound) velum cover stock shall be used for the covers of all CCSDS Blue, Green, and Yellow Books.

b) Red Books may have lighter-weight card-stock covers. White and Pink Books may have paper covers.

6.1.1.4 Binding

a) Blue and Green Books shall be published with either saddle stitching or perfect binding. The kind of binding used is determined by the number of pages in the document. In general,

   1) documents having fewer than 48 leaves (i.e., fewer than 96 pages) have saddle-stitch binding;

   2) documents having more than 48 leaves have perfect binding.

   NOTE   – The number of leaves is given here only to provide a practical gauge of book width for 89 gsm pages. Heavier paper would produce a thicker book, and fewer leaves would be required for perfect binding.

b) At the direction of the Management Council, certain documents are published as loose-leaf pages to allow the frequent addition of updated information. For loose-leaf publications

    1) binders shall be prepared for the original issue of loose-leaf pages;

    2) the colour of the binders shall be the same as the book colour (i.e., Blue or Green) and shall match as nearly as possible the appropriate Pantone color as defined under 6.2.1.1.

    3) CCSDS cover and spine inserts shall be prepared in accordance with the requirements of 6.2.1.1 and inserted into the cover and spine areas of the binders.

6.1.1.5 Alternative Binding

White, Red, Pink, and Yellow Books may be bound with side stitching. White and Pink Books having fewer than 20 leaves may be stapled once in the upper-left corner. CCSDS documents are not usually three-hole drilled.

6.2   PAGE LAYOUT AND PRINTING

6.2.1 PRINTING PROCESS

6.2.1.1 Covers

a) CCSDS documents shall be published with blue, green, yellow, red, pink, and white covers. The colours used are defined according to the Pantone system (reference [3]).

b) Blue Book and Green Book covers shall be reverse printed on white cover stock. The ink colours shall be

    – Pantone 286 for Blue Books;

    – Pantone 355 for Green Books.

c) Yellow, Red, Pink, and White Book covers are printed with black ink on coloured cover stock. The cover-stock colours are

    – Pantone 3935 for Yellow Books;

    – Pantone 186 for Red Books;

    – Pantone 182 for Pink Books.

d) A matte (unvarnished) finish is specified for covers for all CCSDS documents, whether printed on coloured cover stock or reverse printed on white cover stock.

6.2.1.2 Pages with Text

Text shall be printed on white paper stock with black ink.

6.2.1.3 Pages with Figures

Line art and half-tone art generally are printed on white paper stock with black ink. Coloured pages with figures are permissible provided that black-on-white photocopies of these pages can be read.

6.2.2 PRINTED PAGE

6.2.2.1 Image Area

The image area of CCSDS document printed pages includes the page header and footer and extends from the left edge to the right edge of printed matter on the page. The image area is measured in picas.

6.2.2.2 Margins

Margins are those areas of the page outside the image area. Only the inside (gutter) and head margins are specified.

6.2.2.3 Dimensions

  a) The dimensions of the cover image area shall be the same as the trim size.

  b) For A4 trim sizes, the text-page image area shall be 38 picas wide by 64 picas high (approximately 160 by 271 mm or 6.25 by 10.75 inches).

  c) For 8.5 x 11 inches trim sizes, the text-page image area shall be 38 picas wide by 60 picas high (approximately 160 by 254 mm or 6.25 by 10 inches).

  NOTE – In some cases it may be necessary to exceed the page image area; e.g., it may be necessary to reproduce a figure that is wider than 38 picas. In such cases the figure may be allowed to bleed into the margin opposite the gutter margin, although at least two picas of white space should remain between the extreme edge of the printed material and the page edge. When printing oversized figures, special care is necessary to ensure that the full figure can be reproduced on either A4 or 8.5-x-11 paper.

  d) Margin dimensions:

    1) The inside margin for text pages shall be eight picas (approximately 34 mm or 1.33 inches).

2) The head margin shall be three picas (approximately 13 mm or 0.5 inch).

3) The distance between the page header and the first printed line of text on a page shall be a minimum of two picas (approximately 8.5 mm or 0.33 inch).

4) The distance between the page footer and the last printed line of text on a page shall be a minimum of two picas.

The relationship of the margins and image area to the trim-size page and the locations of main page elements are shown in figure 6-1.

3 picas
(13 mm/0.5 inches)
head margin

8 picas
(34 mm/1.33 inches)
inside margin

center of
image area

Page header
aligns with center
of image area.

38 picas
(160mm/6.25 inches)

text

60 picas
(254 mm/10 inches)

Document
number
in footer aligns
with left margin.

Page number
in footer aligns with
center of image area.

Issue date
in footer aligns
with right margin.
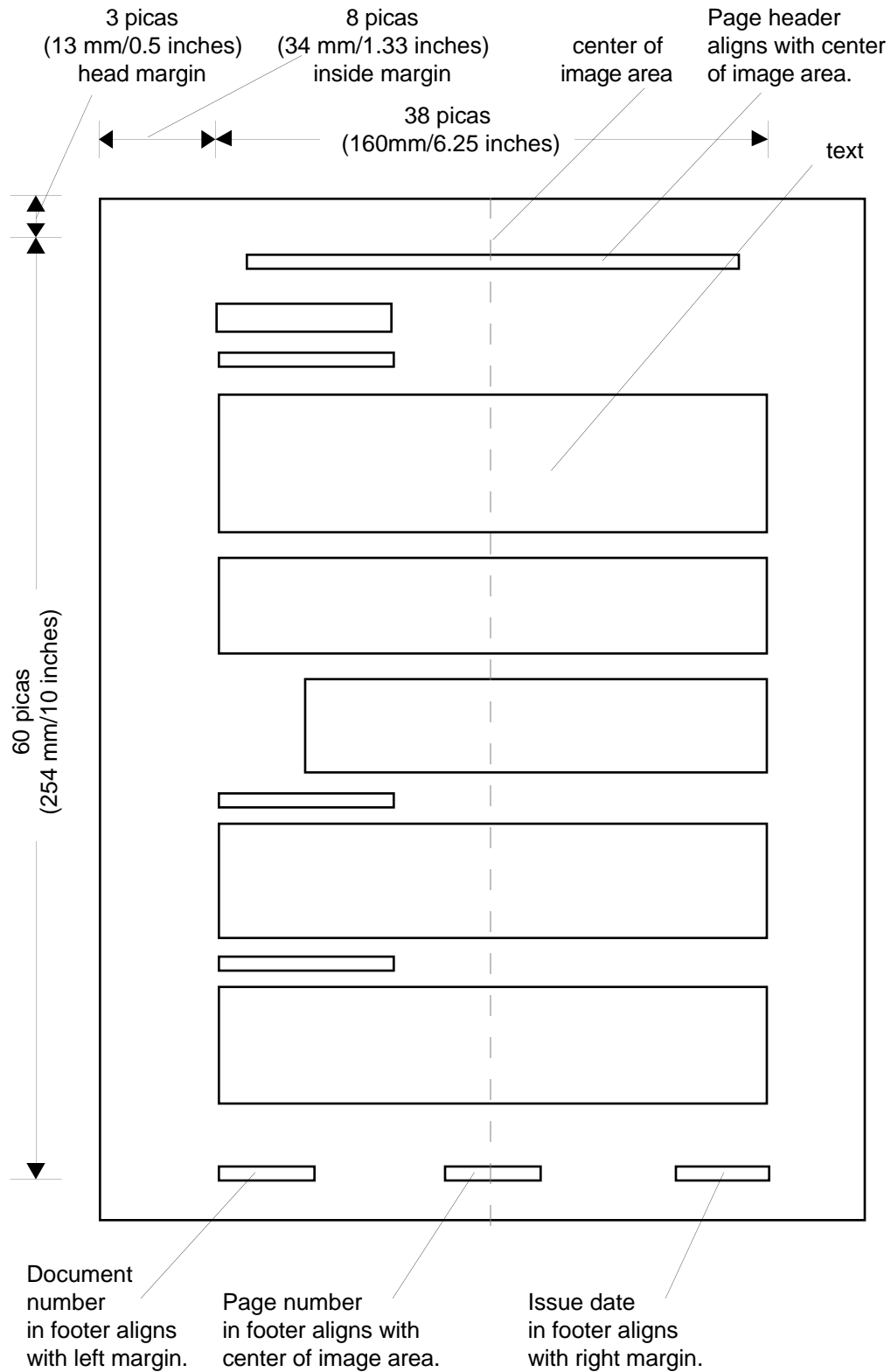
Figure 6-1:   Text Page Dimensions

6.2.3 LAYOUT OF COVER AND SPINE ELEMENTS

6.2.3.1 Front Cover

a) CCSDS document covers shall contain the following elements:

  1) CCSDS name;

  2) series name;

  3) document title in text box:

  For Blue and Green Books, the title background of the title box shall always be the foreground colour of the cover with the title text displayed in the background colour of the cover.

  NOTE 1 – On reverse-printed document covers, the background and foreground colours within the title box are the reverse of the background and foreground colours of the rest of the cover. To achieve this effect, camera-ready copy for the cover is prepared with a white title on a solid black title box.

  4) document number, statement of book colour, issue date;

  NOTE 2 – Although the statement of book colour has proved valuable on many occasions for identifying otherwise ambiguous book cover colours, its purpose is to identify the book colour on black-and-white photocopies of the document.

  5) CCSDS logo.

b) The locations of these elements within the cover image area shall be as detailed in figure 6-2.

  NOTE 3 – Templates for CCSDS document covers may be obtained from the CCSDS Secretariat.

6.2.3.2 Spine

Documents large enough to require perfect binding (see 6.1.1.4) shall have a printed spine showing the document number, document title (shortened, if necessary), and issue date, as illustrated in figure 6-2.

6.2.4 FRONT AND BACK MATTER LAYOUT

The general layout of front- and back-matter pages is shown in figures 6-3 through 6-5.

vertical center of
image area

horizontal center of
image area

3

CCSDS 701.0-B-2

6

**Consultative
Committee for
Space Data Systems**

17

22

Advanced Orbiting Systems

RECOMMENDATION FOR SPACE

DATA SYSTEMS STANDARDS

48

**ADVANCED ORBITING SYSTEMS,
NETWORKS AND DATA LINKS:**

ARCHITECTURAL SPECIFICATION

13

32

3

CCSDS 701.0-B-2

BLUE BOOK

8

November 1992

November 1992

3
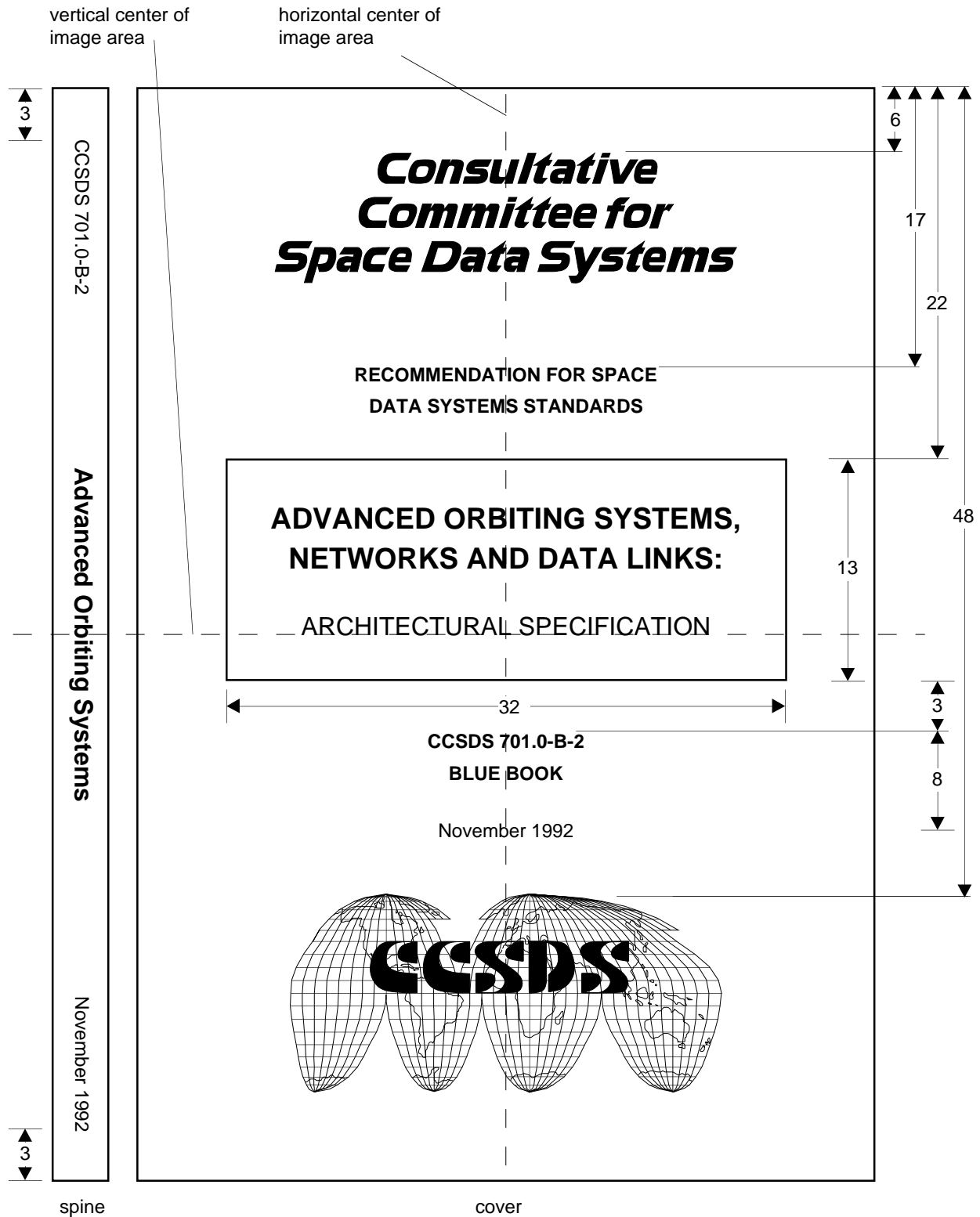
spine

cover

NOTE – Dimensions are in picas. All cover elements are centered horizontally
on image area.

Figure 6-2: CCSDS Cover and Spine Element Locations

title of front-matter element

text

center of
image area

page header

document
number

page
number

issue
date
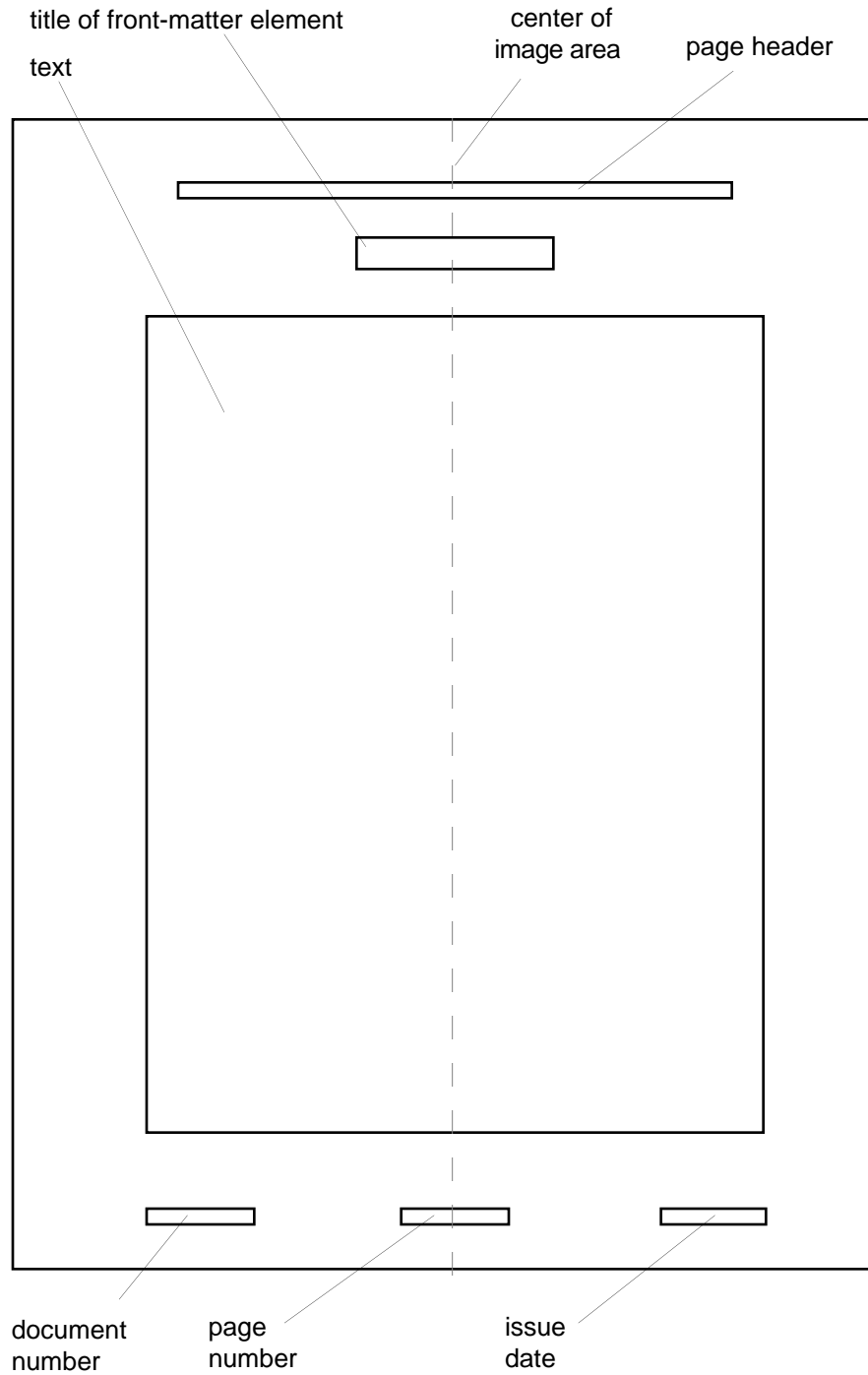
Figure 6-3: Standard Layout for Front Matter Elements

annex designator

statement that annex **is** or **is not**
part of the Recommendation

annex title

annex text

page header

document
number

page
number

center of
image area

issue
date
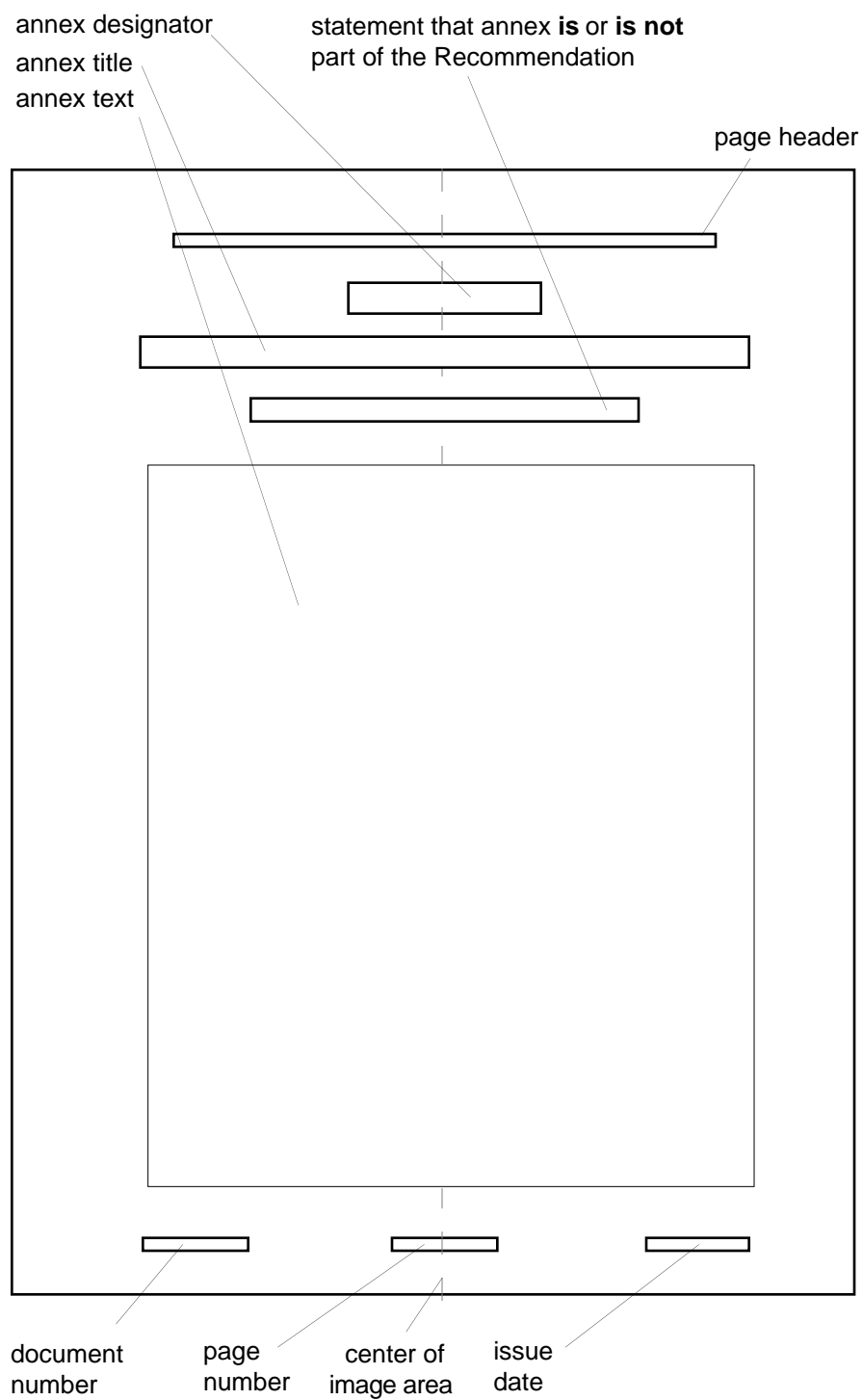
Figure 6-4:   Layout of Annex First Page

index title   index entries in two columns

page header

document
number

page
number

center of
image area

issue
date
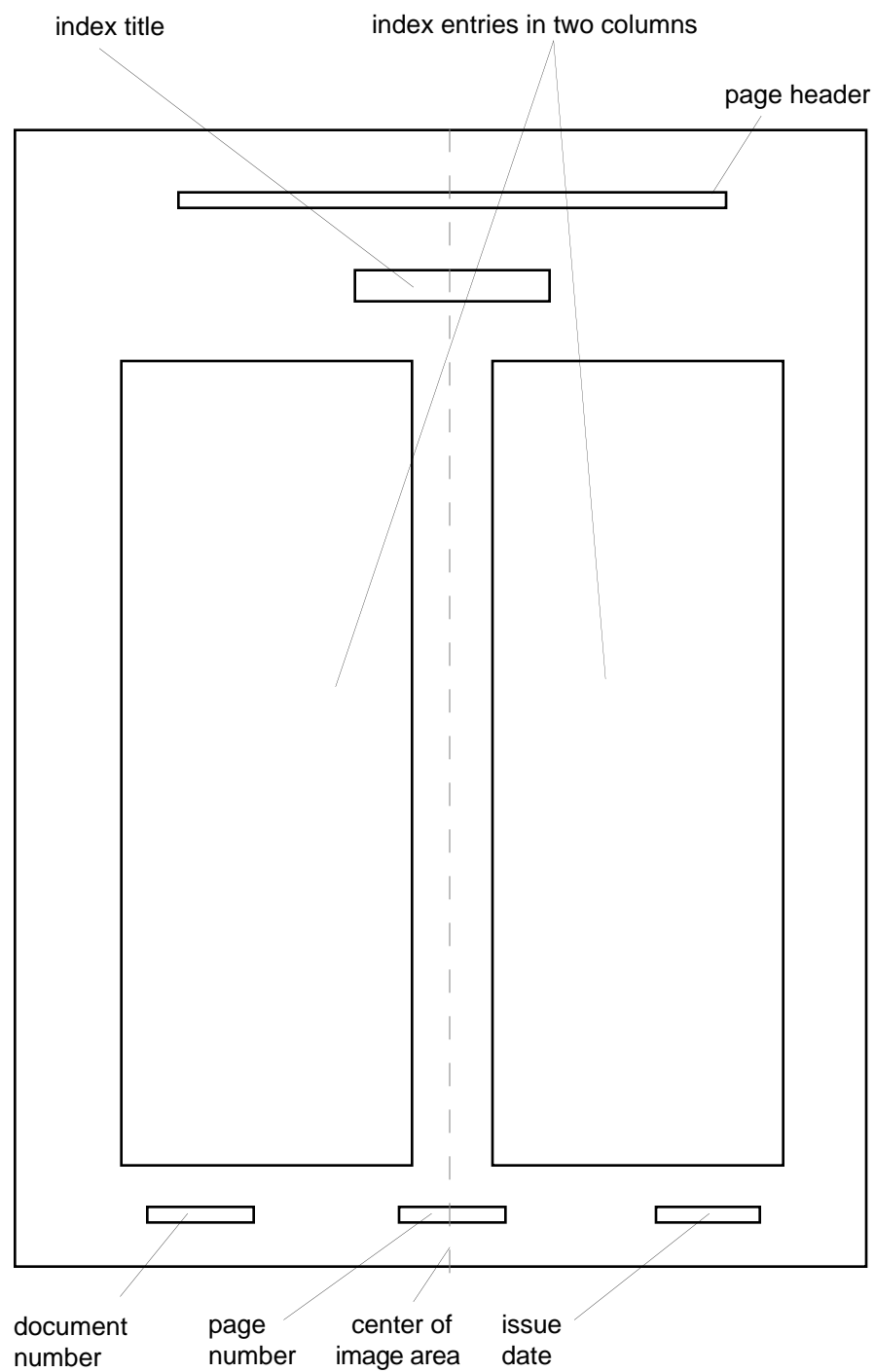
Figure 6-5: Layout of Index

6.3 TYPESETTING

6.3.1 TEXT CHARACTERISTICS

Camera-ready copy for publication of CCSDS documents is prepared on text/image processing systems consisting of a computer input/storage device and a laser-printer output device.

Most such systems provide an assortment of fonts, many of which are unique to the individual system. For normal text processing, however, there are two basic font styles, serif and sans serif, which are available either as downloadable or built-in laser-printer fonts. These two font styles have various names, depending on the system employing them. The serif font may be called Dutch, proportional Elite, Thames, Times-Roman, or Times; the sans-serif font may be called Swiss, proportional Pica, Universal, or Helvetica.

In this document, 'Times' refers to a standard serif font; 'Helvetica' refers to a standard sans-serif font.

6.3.2 STANDARD FONTS, POINT SIZES, AND ATTRIBUTES

A standard set of fonts, point sizes, and character attributes is defined for CCSDS documents. Systems used to produce camera-ready copy for the printing of CCSDS documents must be capable of producing the standard fonts in the full range of standard sizes and attributes.

    a) Standard fonts are

        – Times;

        – Helvetica;

        – Courier.

    NOTES

    1   Courier is a fixed-pitch font (i.e., spacing is not proportional) that may occasionally be needed to represent special character displays, such as bit maps. It is not used for any normal text elements.

    2   A special font is used to display the name 'Consultative Committee for Space Data Systems' on the covers of CCSDS documents. Several definitions of this font are available for use on various systems. Copies may be obtained from the CCSDS Secretariat as part of a cover-template package.

    b) Standard point sizes are

        – 9 to 14 points for text elements;

        – 14 to 24 points for cover text elements (very short titles may be set in 36-point type).

c) Standard character attributes are

– bold;

– italic;

– underline.

d) Both upper- and lower-case characters are required for CCSDS documents. Additionally, a standard set of Greek characters and mathematical symbols may be required.

e) En and em (length) dashes as well as opening and closing single and double quotation marks are required.

6.3.3 OTHER STANDARD TYPESETTING CAPABILITIES

Systems used to produce camera-ready copy for the printing of CCSDS documents must have the following text and graphics processing capabilities:

– line leading;

– line justification;

– linework for tables and text boxes;

– line art;

– halftone art;

– integration of text and graphics.

6.3.4 TYPESETTING OF MAJOR TEXT ELEMENTS

The format and usage of major text elements are defined in section 4. The various typesetting conventions used in the presentation of those elements are defined in the following paragraphs and are summarized in table 6-1.

Table 6-1: Characteristics of Major Text Elements

Text Element	Font	Size	Leading	Attributes	Capitalization	Justification
paragraph	Times	12	2	-	sentence	full
section heading	Times	14	2	bold	upper case	left
2-digit heading	Times	12	2	bold	upper case	left
3-digit heading	Times	12	2	bold	upper case	left
n-digit heading	Times	12	2	bold	title	left
notes	Times	12	2	-	sentence	full
lists	Times	12	2	-	sentence	full
page header	Times	11	n/a	-	upper case	centre
page footer	Times	11	n/a	-	title	n/a
figure titles	Times	12	2	bold	title	centre
table titles	Times	12	2	bold	title	centre
figure text	Helvetica	≥ 9	variable	variable	variable	variable
table text	Helvetica	≥ 9	variable	variable	variable	variable
table headings	Helvetica	≥ 9	variable	bold	title	variable
TOC headings	Times	12	n/a	underline	title	left/right
TOC text	Times	12	2	-	variable[1]	left [2]
index text	Helvetica	9	2	variable	variable	left
CCSDS name on cover	special	24	n/a	n/a	title	centre
series name on cover	Helvetica	14	n/a	bold	upper case	centre
document title on cover	Helvetica	24–36	n/a	bold	upper case	centre
document number on cover	Helvetica	14	n/a	bold	upper case	centre
statement of book color on cover	Helvetica	18	n/a	bold	upper case	centre
issue date on cover	Helvetica	14	n/a	-	Title	centre

[1] Capitalization is the same as that of the referenced heading or title.

[2] Page numbers are aligned on the right-hand side of the page; leader dots fill the space between the last character of entry text and the corresponding page number.

6.3.4.1 Normal Text

a) The text of normal paragraphs, notes, and lists shall be set in 12-point Times with two-point leading.

Note – Leading is an automatic feature on most modern word processors, and two-point leading is frequently the default.

b) Text lines shall be full justified.

c) All text, except in indexes, shall be laid out in single full-page columns.

6.3.4.2 Section Headings

a) Section headings shall be set in 14-point bold, upper-case Times.

b) Section headings shall be left justified.

c) For a section heading that exceeds a single line in length, all lines shall be left justified at the first tab position to the right of the heading number with 2-point leading applied between lines.

d) Front- and back-matter main-element headings are analogous to section headings and have the same font characteristics. However, these headings shall be centred horizontally on the page and positioned as shown in figures 6-3 through 6-5.

6.3.4.3 Subsection Headings

a) Subsection headings shall be set in 12-point bold Times.

b) Subsection headings shall be left justified.

c) For a subsection heading that exceeds a single line in length, all lines shall be left justified at the first tab position to the right of the heading number with 2-point leading applied between lines.

d) Two- and three-digit subsection headings shall be set in upper case.

e) The first character of the major words in a four-digit subsection heading shall be capitalized as in a title.

f) Subsection headings shall not be separated (e.g., by page breaks) from the text of that subsection.

6.3.4.4 Figure and Table Titles

a) Titles of figures and tables shall be set in 12-point bold Times and capitalized as titles.

b) The title shall be positioned

  1) for figures, centred horizontally below the figure; and

  2) for tables, centred horizontally above the table.

c) For figure and table titles that exceed a single line in length, all lines shall be aligned on the left under the first character of the title (i.e., to the right of the figure or table number) with two-point leading applied between lines.

d) For tables and figures that continue on successive pages, the title shall be repeated on each page in the same style as the first with '(continued)' added to the end of the title.

e) For tables and figures occupying more than two pages, '(page $\{n_1\}$ of $\{n_2\}$)', where n_1 is the actual page and n_2 is the final page, may be appended to the title on all pages.

6.3.4.5 Figure and Table Text

a) Text in figures and tables shall be set in Helvetica.

b) Point sizes and leading shall vary according to the space limitations of the particular figure or table. However, the guiding principle for selection of point size is readability, especially in extreme circumstances when a page is faxed or photocopied several times. Therefore nine points is a practical minimum size for text in a figure or table.

c) Row and column headings in a table shall be bold and capitalized as titles.

6.3.4.6 Page Headers and Footers

a) Page headers and footers shall be set in 11-point Times. Leading is not applicable to page headers and footers. No special attributes are used.

b) The justification and positioning of page headers and footers are as shown in figure 6-1.

c) Headers and footers shall be omitted from blank pages.

6.3.4.7 Cover and Title Page Text Elements

The layout of the front cover and title page is defined in 6.2.3.1 and shown in figure 6-2.

a) **CCSDS Name**. The CCSDS name is fixed and is displayed in 24-point characters. The font used is a special font that may be requested from the CCSDS Secretariat.

b) **Series Name**. The series name shall be set in 14-point bold, upper-case Helvetica, and centred horizontally.

c) **Document Title.** The document title shall be set in bold Helvetica and centred in the box. The type size is 24–36 points depending on the length of the title.

d) **Document Number**. The document number shall be set in 14-point bold, upper-case Helvetica and centred horizontally on the image area.

e) **Statement of Book Colour**. The book colour statement shall be set in 18-point bold upper-case Helvetica and centred horizontally on the image area.

f) **Issue Date**. The issue date shall be set in 14-point Helvetica, capitalized as a title, and centred horizontally on the image area.

6.3.4.8 Other Text Elements

a) **Table of Contents Column Headings**

Table of contents column headings shall be set in 12-point Times, underlined, and capitalized as in titles.

b) **Table of Contents Text**

1) All text in the table of contents shall be set in 12-point Times with 2-point leading.

2) Capitalization of the entries shall be the same as that of the referenced heading or title.

c) **Index Text**

1) Index text shall be set in 9-point Helvetica.

2) Text attributes may vary according to the complexity of the index (e.g., an index having several subdivisions may differentiate those divisions by using different attributes for different levels).

3) A ragged-right edge (i.e., left-justified) is standard for index entries.

4) The index entries that point to the page where the index item is defined shall be set in bold type.

6.3.4.9 Change Bars

a) Change bars shall be 4 points in width.

b) Change bars shall be positioned horizontally three picas from the outside edge of the image area.

c) Change bars shall be positioned vertically so that the top end of the bar aligns with the beginning line of changed text and the bottom end of the bar aligns with the ending line of the changed text.

6.4 COLLATING ELEMENTS

CCSDS documents include the following four major elements:

a) covers;

b) front matter;

c) main text;

d) back matter (optional).

6.4.1 COVERS

With the exception of loose-leaf publications (see 6.1.1.4), all published CCSDS documents have front and back covers. The cover stock, ink colour, trim size, image area, and layout of CCSDS document covers are specified in 6.1 and 6.2. Documents having more than 48 leaves, which are bound with perfect binding, have a printed spine. Back covers contain no printed matter.

6.4.2 FRONT MATTER

6.4.2.1 Front Matter Elements

Front matter generally includes the following elements:

a) title page;

b) Authority page;

c) Statement of Intent;

d) foreword;

e) document control;

f) table of contents.

Not all CCSDS documents contain all these elements; however, the order of the elements should be consistent for all CCSDS documents. The definitions and requirements for these elements may be found in 3.2.

6.4.2.2 Pagination

Each front-matter element shall begin on the next page following the last page of the preceding element. The Document Editor may choose to begin certain longer elements on recto pages.

6.4.2.3 Page Numbering

a) Front matter pages following the title page shall be numbered consecutively with lower-case Roman numerals beginning with page i.

NOTE – Recto pages always have odd numbers; verso pages always have even numbers.

b) Blank pages shall not be numbered.

6.4.3 MAIN TEXT

6.4.3.1 Main Text Elements

The main text generally includes the following elements:

a) introduction;

b) overview;

c) main text.

The definitions and requirements for these elements may be found in 3.3

6.4.3.2 Pagination

a) The first section of main text shall begin on the first recto page following the last page of front matter.

b) Subsequent sections shall begin on the first recto page following the last page of the preceding section.

6.4.3.3 Page Numbering

a) Each section of main text begins on a recto page designated page '{S}-1', where S is the section number.

NOTE – Loose-leaf publications (see 6.1.1.4b) have special pagination requirements, and the page numbering of such documents may differ from the style for bound documents.

b) Subsequent pages within each section shall be numbered consecutively in the same style.

c) Only Arabic numbers shall be used.

d) Blank pages shall not be numbered.

6.4.4 BACK MATTER

6.4.4.1 Back Matter Elements

The back matter may include:

a) annexes;

b) index.

The definitions and requirements for these elements may be found in 3.4

6.4.4.2 Pagination

a) The first back-matter element shall begin on the first recto page following the last page of main text.

b) Subsequent elements shall begin on the first recto page following the last page of the preceding element.

6.4.4.3 Page Numbering

a) Each element of back matter shall begin on a recto page designated '{L}-1', where L is one or more upper-case alphabetical characters corresponding to the designation of the particular back-matter element. (For example, annex A begins on page 'A-1'.)

b) The index, if present, shall begin on a page designated 'I-1'. However, if a document includes both an index and an annex I, the index shall begin on page 'IN-1'.

c) Subsequent pages within each back-matter element shall be numbered consecutively in the same style.

d) Only Arabic numerals shall be used for page numbers.

e) Only upper-case alphabetical characters shall be used for back-matter element designators.

f) Blank pages shall not be numbered.

ANNEX   A
ACTIVITIES   AND   RESPONSIBILITIES OF CCSDS EDITORS

(This annex **is** part of the Manual.)

A1   INTRODUCTION

This annex contains descriptions of the activities and responsibilities of the Technical Editor and Document Editor involved in the preparation of CCSDS documents.

Descriptions of two positions are included:

  a) Technical Editor;

  b) Document Editor.

A2   TECHNICAL EDITOR

The Technical Editor is normally a member of one of the CCSDS technical subpanels developing a CCSDS technical document.

A2.1 A Technical Editor is required to take a major role during the work which will result in the publication of any CCSDS Blue or Green Book.

A2.2 The technical material appearing in a CCSDS Document shall be coordinated by the Technical Editor.

A2.3 The Technical Editor shall be responsible for preparing the document

  a) main text technical content as defined in the main text of this Manual;

  b) elements of front matter including

   1) the technical contents of the foreword, and

   2) status and change information under document control;

  c) back matter including

   1) the technical contents of the annexes, and

   2) the index, including the decision whether to include an index.

A2.4 He/she is responsible for organizing and presenting the technical material (text and graphics) to the best of his/her ability.

A2.5 He/she shall follow the Manual wherever possible (particularly in the chosen wording), but does not have ultimate responsibility for conformance with the Manual.

A2.6 In particular, if he/she finds instances where there must be an intentional violation of the Manual, he/she shall bring this discrepancy to the attention of Document Editor and explain why the discrepancy is necessary.

A2.7 His/her final draft of a CCSDS document shall represent the technical consensus of his/her subpanel and panel before submission to the CCSDS Document Editor for publication.

A2.8 The Technical Editor shall be responsible for ensuring that the document control functions, as defined in the main part of this Manual, are implemented.

A2.9 The Technical Editor shall present the final draft of a CCSDS document to the Document Editor as computer readable files on a floppy disk or by other file transfer processes.

A3   DOCUMENT EDITOR

The CCSDS Document Editor is normally a member of the staff responsible for publishing CCSDS documents.

A3.1 The Document Editor shall be responsible for the preparation of the CCSDS document front cover and front matter as defined in the main text of this Manual.

A3.2 The Document Editor shall review all CCSDS documents received from Technical Editors for unified appearance and conformance with the Manual.

A3.3 Where exceptions are necessary, he/she shall use his/her good judgment to make a professional appearing document.

A3.4 He/she shall be empowered:

   a) to adjust graphic appearance of a page;

   b) to correct grammatical, spelling, capitalization, and punctuation errors;

   c) to correct other document errors (e.g., cover colours, page numbers, index citations, document numbers, etc.);

   d) but not to change the meaning of any of the technical material without consulting the Technical Editor.

A3.5 He/she shall ensure that the information on the Authority page is correct and complete.

A3.6 He/she shall ensure that CCSDS documents are not released to the public until authority to do so is received from the CCSDS Secretariat.

A4 COOPERATION OF CCSDS TECHNICAL EDITORS AND DOCUMENT EDITORS

The activities of CCSDS Technical Editors and Document Editors require coordination. For this reason, it is necessary that Technical Editors and Document Editors establish a close working relationship, and that they confer regularly throughout all phases of the CCSDS document-development process. CCSDS Technical Editors and Document Editors are expected to work together in the same spirit of cooperation that has characterized the work done by the CCSDS Agencies.

ANNEX   B
ACRONYMS   AND   TERMINOLOGY

(This annex **is not** part of the Manual.)

This annex defines terms used in the Manual.

basis weights: an antiquated system, still the standard in the United States, used to describe paper weight (c.f. *grammage*). In the *basis weights* system, different amounts of paper are used to determine the weights, in pounds, of different kinds of paper, and so it happens that 50-pound cover stock is considerably heavier than 60-pound book paper.

boilerplate: text or other printed matter that is reused without change in successive publications.

em: a printing space approximately equal to that of the character M.

en: a printing space approximately equal to one-half of an *em*.

grammage: the standard system, except in the United States, for measuring paper weight (c.f. *basis weights*). The unit of measure in the grammage system is grams per square meter (gsm) for all kinds of paper.

gsm: see *grammage*.

gutter: the binding-edge margin of a page.

leading (pronounced *ledding*): white space, measured in points, added between lines of text.

leaf: a two-sided page of a book.

mm: millimetre.

page: any recto or verso page. A page may contain printed matter or may be blank. There are two pages for every leaf.

perfect binding: a type of book binding in which a paper cover is glued to the squared-off spine of a book.

pica: a unit of measure used in printing, approximately equal to 12 points (4.2 mm, 1/6 inch).

point: a unit of measure used in printing, approximately equal to 0.35 mm (1/72 inch).

pound: see *basis weights*.

recto: traditional term for right-hand page. The left edge of a recto page is the bound edge.

saddle stitching: a type of book binding in which a folded paper cover is stapled to the signature fold of a book from the outside to the inside along the fold. Saddle stitching is also referred to as saddle wiring.

sans serif: without serifs, referring to font styles in which the characters are formed from lines without terminal embellishments. Serif and sans-serif styles are contrasted in figure A-1.

serif: a small, typically right-angle embellishment at the ends of lines forming characters of certain fonts; cf. sans serif. Serif and sans-serif font styles are contrasted in figure A-1.

serifs   no serifs

Figure A-1:   Serifs

side stitching: a type of book binding in which all four sides of a book are trimmed and the left edge is stapled from front to back.

signature: printer's term designating a set of paper sheets folded at the centre to form trim-size pages. A book bound with saddle stitching can contain only one signature; a book bound with perfect binding typically contains several signatures.

verso: traditional term for left-hand page. The right edge of a verso page is the bound edge.